

EATING DISORDER SYMPTOMATOLOGY AMONG  
ALASKA NATIVE/AMERICAN INDIAN AND CAUCASIAN FEMALE  
UNIVERSITY STUDENTS IN THE EXTREME NORTH

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A  
THESIS

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### Abstract

The purpose of this study was to explore differences in eating disorder symptomatology among a matched sample of 100 Alaska Native/American Indian and Caucasian female university students, using a demographic instrument and the Eating Attitudes Test (EAT-26). Four (8.0%) Native participants and ten (20.0%) Caucasian participants met or exceeded the EAT-26 cutoff score indicative of clinically significant eating disorder symptomatology. There were no significant differences found among the Native and Caucasian participants with regard to eating disorder symptomatology. Rather, eating disorder symptomatology was present in both Native and Caucasian female college students at rates similar to that of previous studies.

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Eating disorders, characterized by severe disturbances in eating behavior, are becoming increasingly problematic, especially among young women living in industrialized societies. The Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision (DSM-IV-TR; American Psychiatric Association, 2000) reports that 1.0 to 3.0% of females in the general population suffer from eating disorders and that 90.0% of these women have a mean age of 17 to 18 years.

Though the recognition of several different categorizations of eating disorders exists among professionals, Anorexia Nervosa and Bulimia Nervosa appear to dominate the research literature on eating disorders. Both disorders are associated with a disturbance in perception of body shape and weight (American Psychiatric Association, 2000). Specifically, Anorexia Nervosa is characterized by a refusal to maintain a minimally normal body weight, intense fear of gaining weight, and significant disturbance in the perception of the shape or size of the individual's body. This disorder is seen in 0.5% of the female population and it is estimated that many other individuals suffer with sub-threshold symptoms (American Psychiatric Association, 2000). Bulimia Nervosa is a disorder in which an individual repeatedly binge eats and compensates by purging through the use of self-induced vomiting, misuse of laxatives, diuretics, fasting, or excessive exercise, and is reported in 1.0 to 3.0% of the female population (American Psychiatric Association, 2000). The prevalence of eating disorders in men is significantly less than that of women, only comprising approximately one-tenth of the reported female rate (American Psychiatric Association, 2000).

### Theoretical concepts regarding the etiology of eating disorders

Heller (2003) states that there is no single cause of eating disorders; rather they can be caused by a number of personality traits, family and environmental factors, and cultural influences. Many authors theorize that eating disorders are the result of socio-cultural factors such as cultural values, economic resources, and social institutions within which other factors function (Akan & Grilo, 1994; American Psychiatric Association, 2000; Castillo, 1997; Fedoroff & McFarlane, 1998; Garner, Olmstead, Bohr, & Garfinkel, 1982; Haworth-Hoepfner, 2000; Heesacker, Samson, & Shir, 2000; Hoek, van Hoeken, & Katzman, 2003; Miller & Pumariega, 2001; Thompson-Leonardelli, 2003; Varnado, 2002; Wilfley & Rodin, 1995). According to the American Psychiatric Association (2000) eating disorders appear to be related to the abundance of food and ideals of beauty found in industrialized countries, which link being thin with being attractive. Indeed, Wilfley and Rodin (1995) point out that the concept of being thin in Western cultures, such as the United States of America, has become not only a beauty ideal but also has come to symbolize success, sexual attractiveness, and control, whereas obesity symbolizes laziness, self-indulgence, and a lack of willpower.

The ideal of thinness and a societal emphasis on controlling weight have been a part of Western cultures since the early part of this century. However, it has only been within the last 30 years that dieting and thinness have become a mass cultural obsession and, as a result, eating disorders have had increased prevalence (Castillo, 1997; Fedoroff & McFarland, 1998; Gordon, 1990; Halmi, 2003). It is important to point out that other authors, although they may agree with the notion that cultural factors contribute to the

prevalence of eating disorders, caution against assuming that there are a homogeneous set of values that have a determining effect on behavior (Haworth-Hoeppner, 2000).

Thompson (1994) cautions against believing that everyone is affected by Western cultural messages in the same manner. Rather, she believes that there is no monolithic “American” cultural message.

The messages girls receive regarding ideal body size and eating attitudes and behaviors are shaped by ethnicity, nationality, class, family members, and individual personalities (Thompson, 1994). In fact, some researchers claim that ethnic minority groups may be protected from the cultural messages that emphasize thinness in the United States, due to culturally based differences in attitudes toward body weight and appearance (Aoun & Gregory, 1998) and perceived social pressures to be thin (Powell & Kahn, 1994).

#### Eating disorders among college women in the U.S.

Because 90.0% of the women who suffer from eating disorders have a mean age of 17 to 18 years, and in addition, the average student entering college is around 18 years of age, it is likely that one of the populations most affected by these disorders will be female college students. Indeed, the literature relating to the prevalence of eating disorders in female college populations is extensive but rather inconsistent. Mintz and Betz (1988) found that 3.0% of the undergraduate college women they surveyed (N=682) could be classified as bulimic, whereas 61.0% could be classified as having some intermediate form of eating disordered behavior. In contrast, only 33.0% of the women in the study reported having “normal eating habits” (Mintz & Betz, 1988). Another study

found that 7.0% of students at one university (N=90) had received some type of treatment for an eating disorder and 7.5% of the students attending a comparison university (N=67) had reported seeking help from professionals for an eating disorder, implying that groups of women from both universities were currently suffering or had suffered from eating disorders in their lives (Kashubeck, Walsh, & Cowl, 1994). Additionally, Prouty, Protinsky, and Canady (2002) found that 17.0% of women surveyed (N=578) at a mid-Atlantic university currently had an eating disorder. Thus, it appears that eating disorders are relatively common among women on college campuses, but prevalence rates for these female college populations vary widely.

Equally important is the research literature that focuses on the prevalence of specific eating disorders among female college populations. For instance, one longitudinal study, examining the prevalence of eating disorders among female students over a ten-year period at one university, reported an estimated prevalence for Bulimia Nervosa of 7.2% in 1982 (N=625), as compared to a 5.1% prevalence rate in 1992 (N=564; Heatherton, Nichols, Mahamedi, & Keel, 1995). Another study focusing on the current prevalence of Bulimia Nervosa in college women found that 2.0% to 3.8% of the population sampled (N=1858) suffered from the disorder (Thelen, McLaughlin Mann, Pruitt, & Smith, 1986). Additionally, Drewnowski, Yee, and Krahn (1988) found that 4.2 cases of Bulimia Nervosa occurred per 100 women in female college participants (N=931) during a single year. Furthermore, another study designed to examine gender differences in eating attitudes and behaviors among 471 college students (333 females and 138 males), using the Eating Attitudes Test-26 (EAT-26), found that 20.0% of the

surveyed females had scores indicative of anorexic symptomatology, while 10% of surveyed males evidenced similar scores (Nelson, Hughes, & Katz, 1999). Although the literature related to eating disorders may be inconsistent, it is extensive and appears to indicate that there is a significant amount of eating disorders and related disturbed eating attitudes and behaviors among college women living in the United States.

#### Eating disorders among ethnic minority groups in the U.S.

A new trend has recently emerged in the research literature examining eating disorders cross-culturally. The rates of these disorders among different racial and ethnic groups appear to vary across time. Eating disorders are currently acknowledged as being more prevalent than previously recognized among various ethnic minority groups living within the United States (Miller & Pumariega, 2001). Similar to that of the research focusing on university female populations, the literature regarding ethnic and/or cultural differences in eating disordered behavior varies, however, most still claim that these disorders are rare among minority groups and that the disorder primarily affects Caucasian women in the United States (e.g., Abrams, Allen, & Gray, 1992; Akan & Grilo, 1994; Gluck & Geliebter, 2002; Joiner & Kashubeck, 1996; Nielsen, 2000; Powell & Kahn, 1994).

Much of the literature related to eating disorders and eating disordered behavior among American ethnic minorities tends to focus on the differences between Caucasians and African Americans, generally showing that there is a lack of eating disordered symptoms among African American women, when compared to their Caucasian counterparts. Powell and Kahn (1994) found that when comparing Caucasian and African

American female and male participants, 29.0% of the Caucasian women (n=59) had a greater discrepancy between current and ideal body size than did the African American women (19.0%, n=38), with Caucasian women feeling as if they were currently heavier than their ideal body size. In addition, the researchers found that Caucasian women seemed to perceive a significantly greater social pressure to be thin and felt a greater concern for their weight and dieting than did the African American women in the study (Powell & Kahn, 1994).

Similar to these findings, another research study reported that 100 Caucasian university women demonstrated significantly greater dietary restraint, were more concerned about weight loss, and made more of an effort to achieve a thin body, when compared to 100 African American university women participating in the study. Likewise, the researchers found that more than twice as many of the Caucasian participants (12.0%) reported using self-induced vomiting as a means of controlling their weight than did African American female participants (5.0%; Abrams, Allen & Gray, 1992). Furthermore, Nielsen (2000) found that 25.0% of the Caucasian college women (n=353) in her study presently or formerly had an eating disorder, whereas only 9.0% of the African American college women (n=56) reported having an eating disorder. These studies appear to suggest that among Caucasian and African American women, the significance of eating disorder pathology tends to be more prevalent among Caucasian women.

Studies of other ethnic minority groups, such as Asian American and Hispanic populations within the United States, are also of interest. Akan and Grilo (1994)



evaluated eating attitudes and behaviors, body image, and psychological functioning among African American (n=36), Asian American (n=40) and Caucasian (n=108) college women. These authors found that Caucasian college women participating in the study reported higher levels of disordered eating attitudes and behaviors when compared to African American and Asian American participants, who did not differ significantly in their responses (Akan & Grilo, 1994). Another similar study examined eating behaviors and body image perceptions among African American (n=46), Asian American (n=40), and Caucasian (n=108) undergraduate females (Gluck & Geliebter, 2002). These authors found that after controlling for Body Mass Index (BMI), the Caucasian women scored higher on the Eating Habits Questionnaire (EHQ), suggesting that they have higher rates of disordered eating behaviors, when compared with Asian American and African American undergraduate women. However, Asian American women scored higher on the EHQ than African American undergraduate women. In addition, the researchers found that Caucasian and Asian American participants both scored significantly higher on the weight/dieting subscale of the EHQ than did African American participants, but did not differ from one another (Gluck & Geliebter, 2002). In another study, Lucero and colleagues (1992) found that while Caucasian women (n=162) tended to be more likely to report eating problems than Asian women (n=11) participating in their study, the percentage of Caucasian women (43.2%) and Asian American women (38.7%) reporting a lack of any symptoms of eating problems were very similar, as measured by the EAT-26. Another study, only looking at symptoms of Bulimia Nervosa among Asian American women found that, out of 257 participants, only two (0.8%) met the criteria for Bulimia



Nervosa. However, the researchers concluded that if three of the four DSM-IV criteria for Bulimia Nervosa were used, 13 Asian American participants (5.1%) in the study would have been characterized as suffering from the disorder. This finding suggests that sub-threshold eating disorders may exist more frequently among this population (Tsai & Gray, 2000).

Consequently, Asian American and other minority populations may be overlooked when assessing for significant eating disordered behavior, due to the fact that they have multiple symptoms but do not meet the diagnostic criteria as stated in the DSM-IV-TR. However, most of the studies focusing on comparisons of eating disorder symptomatology among ethnic minority groups living within the United States appear to consistently show that, when compared with their Caucasian counterparts, the prevalence of eating disorder symptomatology is greater among Caucasian populations (e.g., Abrams, Allen, & Gray, 1992; Akan & Grilo, 1994; Gluck & Geliebter, 2002; Joiner & Kashubeck, 1996; Nielsen, 2000; Powell & Kahn, 1994).

#### Eating disorders among Alaska Native/American Indians

Although the literature regarding eating disorders among minority populations living within the United States is extensive, one ethnic minority group appears underrepresented in this research area; that of Alaska Native/American Indian populations. The limited number of available studies appear to indicate that Alaska Native/American Indians are increasingly exhibiting disturbed eating behaviors and are practicing unhealthy ways to control weight (e.g., Aoun & Gregory, 1998; Rosen et. al., 1998; Sherwood, Harnack, & Story, 2000; Smith & Krejci, 1991; Snow & Harris, 1989;

Story et. al., 1994; White et. al., 1997). Sherwood and colleagues (2000) found that 40.6% of the non-overweight American Indian women participants (N=203) reported perceiving themselves as being “too fat” and 18.8% reported dieting to lose weight. Similarly, using the Navajo Health and Nutrition Survey, White and colleagues (1997) found that almost half (48.0%) of 485 Navajo women participating in the research reported trying to lose weight, 82.0% of these participants reported using diet and exercise, 3.0% reported using diet pills, 3.0% reported using other products such as laxatives or diuretics, and 5.0% reported using self-induced vomiting. In addition, about 20.0% of the participants reported that they had fasted for 24 hours or more at least occasionally to control their weight (White et al., 1997).

Another study that looked at the prevalence of eating disturbances among 126 Native American, 327 Hispanic, and 89 Caucasian high school students found that 10.7% of the Native American participants, 4.3% of the Hispanic participants, and 4.6% of the Caucasian participants reported that they self-induced vomiting after meals at least once a month (Smith & Krejci, 1991). In addition, 40.8% of the Native American participants, 36.8% of the Hispanic participants, and 27.9% of the Caucasian participants reported that they fasted or used excessive dieting to control their weight, suggesting that eating disordered behaviors may be more prevalent among this sample of Native American high school students, when compared to the Hispanic or Caucasian high school students sampled (Smith & Krejci, 1991). In a second study examining eating disturbances among Native populations, Snow and Harris (1989) found that five Pueblo Indian females (11.0%) met the DSM-III criteria for Bulimia Nervosa, within a population of 51

Pueblo Indian females sampled. In addition, 87.0% of the Pueblo Indian female participants reported being worried about "being too fat," suggesting a possible preoccupation with weight, a symptom of both Anorexia Nervosa and Bulimia Nervosa (Snow & Harris, 1989). Furthermore, another study focusing on the prevalence of weight control behaviors among 85 Chippewa women and girls, aged 12 to 55, found that 74.0% of the participants were trying to lose weight and 75.0% of those who were dieting to lose weight were using potentially hazardous techniques to accomplish the weight loss. Further results from this study indicated that 24.0% of the dieters used one or more purging behaviors associated with Bulimia Nervosa (Rosen et al., 1988).

Story and colleagues (1994) conducted one of the most extensive studies to date related to the prevalence of eating disordered behaviors among Native youth. The study involved 13,454 7<sup>th</sup> through 12<sup>th</sup> grade Native students, who were asked to complete a revised version of the Adolescent Health Survey, to assess their eating attitudes and behaviors. The researchers found that 41.0% of the females reported feeling overweight, 50.0% felt dissatisfied with their weight, 48.0% had been on a weight-loss diet in the past year, 27.0% reported that they had self-induced vomiting to control their weight, and 11.0% reported that they had used diet pills to control their weight. The researchers then compared this population to a population of rural Caucasian youth in Minnesota who completed a similar survey in 1988. Findings suggested that Native girls, when compared with Caucasian girls, were more likely to have body dissatisfaction (49.8% vs. 46.0%) and to have self-induced vomiting to control weight (27.1% vs. 12.6%; Story et al., 1994).

Finally, Aoun and Gregory (1998) examined the charts of 343 Eskimos seen at a community mental health center in northwest Alaska from October 1990 until April 1993 and found that 4 (2.9%) out of 140 Eskimo women had been diagnosed as having an eating disorder. Overall, unlike most of the research literature focusing on other ethnic minority groups living within the United States (e.g., African American and Asian) the studies focusing on Native populations appear to indicate that eating disorder pathology may exist equally or to a greater degree among Native populations, when compared with other ethnic groups (e.g., Caucasians or Hispanics).

#### Methodological issues

Difficulties in obtaining accurate prevalence rates for eating disorders have been attributed to the overall low prevalence of eating disorders in the general population and the tendency for those suffering from the disorders to conceal their illness and avoid professional help (Hoek, van Hoeken, & Katzman, 2003). One strategy that has been used to circumvent this problem is the use of two-stage studies, which involved screening a large population using self-report questionnaires and then interviewing all those identified as at-risk for an eating disorder and a small random sample of others who participated but were not deemed as at-risk. Limitations of this strategy included low response rates, sensitivity of the information being obtained, and small sample sizes during the second stage (Hoek, van Hoeken, & Katzman, 2003). Another strategy used to combat the research problems associated with obtaining accurate prevalence data for eating disorders involved focusing on a special population, such as female university or high school students, that had been selected as being at higher risk for having an eating

disorder. Methodological limitations included the lack of generalizability to the general population (Hoek, van Hoeken, & Katzman, 2003). Though the two-stage method has been shown to yield relatively accurate data, it was not deemed appropriate for the current study, which utilized a one-stage approach, focusing on a specific population (i.e., college women), and using a self-report questionnaire to assess eating disorder symptomatology.

Several self-report instruments have been utilized to measure eating disorders and related symptoms among diverse populations (i.e., comparisons by gender, ethnicity, age, socioeconomic status), and in both clinical and non-clinical settings. These instruments have the advantage of being relatively economical, less time consuming, easily administered, and more objectively scored (Garner, 1995). The Eating Disorder Inventory (EDI), a 64-item, forced-choice quantitative inventory measure, has been used to examine anorexic behaviors and attitudes among clinical, sub-clinical, and non-clinical samples of college women and a variety of ethnic minority groups (e.g., Abrams, Allen, & Gray, 1992; Joiner & Kashubeck, 1996; Schwitzer, Rodriguez, & Thomas, 2001; Smith & Krejci, 1991; Tsai & Gray 2000). In addition, the Bulimia Test (BULIT), a 32-item, Likert-type scale, has been used to reflect the degree to which an individual has bulimic symptomatology in both Caucasian and African-American college women (e.g., Atlas, Smith, Hohlstein, McCarthy, & Kroll, 2002; Thelen, McLaughlin Mann, Pruitt, & Smith, 1986). Finally, the 26-item Eating Attitudes Test (EAT-26) has been widely used to assess for eating disorder symptoms in clinical and non-clinical populations (Garner & Garfinkel, 1979; Garner et al., 1982). Because the instrument has been used to assess the

full spectrum of eating disorder symptoms among ethnic minorities, in both clinical and non-clinical settings (e.g., Akan, & Grilo, 1994; Heesacker, Samson, & Shir, 2000; Kirk, Singh, & Getz, 2001; Lucero et al., 1992; Nelson, Hughes, & Katz, 1999; Prouty, Protinsky, & Canady, 2002), and because it has demonstrated good reliability and validity across a wide range of studies (e.g., Kirk, Singh, & Getz, 2001; Mintz & O'Halloran, 2000; Prouty, Protinsky, & Canady, 2002), the EAT-26 was used in the present study to assess for eating disorder symptomatology.

#### Rationale and hypotheses of the present study

The research related to eating disorders and eating disorder symptoms appears to suggest that the prevalence of eating disorders is not limited to one ethnic group within the United States. However, in comparison to Caucasian participants, much of the research indicates that African American, Asian American, and Hispanic American individuals tend to have less eating disorder symptomatology (e.g., Abrams, Allen, & Gray, 1992; Akan & Grilo, 1994; Gluck & Geliebter, 2002; Joiner & Kashubeck, 1996; Nielsen, 2000; Powell & Kahn, 1994). Perhaps the most surprising data is that which indicates that Alaska Native/American Indian individuals may be suffering from these disorders at rates equal to or greater than their Caucasian counterparts (e.g., Aoun & Gregory, 1998; Rosen et. al., 1998; Sherwood, Harnack, & Story, 2000; Smith & Krejci, 1991; Story et. al., 1994; White et. al., 1997). However, research on prevalence rates of eating disorders in Alaska Native/American Indian populations is sparse and tends to be outdated. Additionally, the majority of the existing research lacks comparison with Caucasian groups to determine if in fact significant differences exist between these two



groups. Thus, there is a critical need for current research in this area, to determine if a definitive prevalence of eating disorders exists among this population and if this prevalence differs in any way from other ethnic groups.

The purpose of the present study was to examine the relationship of eating disorder symptoms among Alaska Native/American Indian and Caucasian female university students in the extreme northern United States. The researcher hypothesized that there would be a difference in eating disorder symptomatology among Native and Caucasian female college students attending this university. This study used the terms Native and Alaska Native/American Indian interchangeably. The present study did not attempt to identify those participants who met the criteria for an eating disorder, but rather compared eating disorder symptomatology among Native and Caucasian groups. In addition, consistent with the majority of the current research literature, which indicates that eating disorders and eating disordered behaviors are typically not as common in male participants as in female participants (e.g., Heatherton et al., 1995; le Grange, Telch, & Tibbs, 1998; Nelson, Hughes, & Katz, 1999; Powell & Kahn, 1994), the current research study did not focus on results from male participants, but rather focused exclusively on results from female participants.



## Method

### Participants

Participants for this study were selected from an overall sample of 380 university students, 266 females and 114 males, recruited from undergraduate classes at a mid-sized university in Alaska. The student sample for this research was enrolled at the university during the spring and summer semesters of 2003. To obtain a general university sample, participants were recruited from a variety of university undergraduate courses in an assortment of academic programs (e.g., Alaska Native Studies, Chemistry, History, Psychology, and Sociology). Of the 380 participants, 262 (68.9%) self-identified as Caucasian, 65 (17.1%) as Alaska Native/American Indian, 16 (4.2%) as African American, 12 (3.2%) as Asian, 10 (2.6%) as Hispanic (Non-Caucasian), and 15 (3.9%) identified as something other than those options listed above. According to the spring semester 2003 enrollment data for students at this university, there were 4,005 (74.0%) Caucasian, 502 (9.0%) Alaska Native/American Indian, 140 (3.0%) African American, 263 (4.0%) Asian, 138 (3.0%) Hispanic, and 342 (6.0%) not reported (University of Alaska, Office of Planning Analysis & Institutional Research, 2003). Thus, the demographic representativeness of this sample is similar to that of the university as a whole. Table 1 provides detailed demographic data for the overall sample of male and female participants.

Table 1  
Demographic Data for the Overall Sample

	<u>n</u>	Female (N=266)		<u>n</u>	Male (N=114)	
		<u>%</u>	<u>M</u> <u>SD</u>		<u>%</u>	<u>M</u> <u>SD</u>
Age	266	100.0%	25.37 7.71	114	100.0%	25.27 7.47
18-22	113	50.0%		64	56.2%	
23-27	69	26.0%		24	21.0%	
28-32	28	10.5%		8	7.1%	
33-37	10	3.9%		8	7.0%	
38-42	9	3.4%		4	3.6%	
43-47	11	4.2%		3	2.7%	
48-52	4	1.6%		2	1.8%	
53-57	1	0.4%		1	0.9%	
58-62	1	0.4%		0	0.0%	
Class						
Freshman	87	32.7%		39	34.2%	
Sophomore	65	24.4%		34	29.8%	
Junior	42	15.8%		16	14.0%	
Senior	48	18.0%		17	14.9%	
Year 1AA	7	2.6%		2	1.8%	
Year 2AA	3	1.1%		2	1.8%	
Other	14	5.3%		4	3.5%	
Ethnicity						
AK Nat./Amer. Indian	55	20.7%		10	8.8%	
African American	11	4.1%		5	4.4%	
Asian	10	3.8%		2	1.8%	
Caucasian	173	65.0%		89	78.1%	
Hispanic	6	2.3%		4	3.5%	
Other	11	4.1%		4	3.5%	
Home Community						
AK Rural (Village)	29	10.9%		12	10.5%	
AK Urban	159	59.8%		65	57.0%	
Out-of-State	73	27.4%		32	28.1%	
Residence						
On-Campus	72	27.1%		44	38.6%	
Off-Campus	194	72.9%		70	61.4%	

## Measures

*Demographic Survey.* Participants in this study completed a Demographic Survey designed by the researcher. The Demographic Survey was a seven-item self-report measure designed to assess general demographic statistics. Items included questions about the participant's sex, year of birth, class standing, ethnicity, home community, and place of residence. In addition, to obtain more accurate demographic data from the Native participants, question number five asked those individuals self-identifying as Native to specify their geographic area, nation, and/or tribal affiliation. All items, with the exception of question five, required the participant to check the correct response (see Appendix A for a copy of the Demographic Survey).

*Eating Attitudes Test (EAT-26).* Participants also completed the EAT-26, a self-report measure developed to assess disordered eating attitudes and behaviors associated with Anorexia Nervosa and Bulimia Nervosa (Garner et al., 1982). The EAT-26 is one of the most widely used instruments for the assessment of eating attitudes and behaviors in both clinical and non-clinical settings (e.g., Akan, & Grilo, 1994; Heesacker, Samson, & Shir, 2000; Kirk, Singh, & Getz, 2001; Lucero et al., 1992; Nelson, Hughes, & Katz, 1999; Prouty, Protinsky, & Canady, 2002). Garner and his colleagues (1982) reported a high degree of internal validity and reliability associated with the EAT-26, as an instrument measuring eating disorder symptoms, attitudes, and behaviors related to Anorexia Nervosa and Bulimia Nervosa. However, the EAT-26 subscales have evidenced lower reliability (Garner et al., 1982; Kirk, Singh, & Getz, 2001). Mintz and O'Halloran (2000) found that when using the EAT-26 to differentially diagnose individuals with and

without a DSM-IV defined eating disorder, the EAT-26 yielded 90% accuracy rates. In other words, the EAT-26 showed high internal validity when measuring the likelihood of someone having any DSM-IV defined eating disorder.

The EAT-26 is composed of 26 items that are scored on a 6-point Likert-type scale. Positively scored items are weighted as follows: always = 3, usually = 2, often = 1, sometimes = 0, rarely = 0, and never = 0. One reverse-scored item (number 26, "I enjoy trying new rich foods") is weighted in the opposite manner: never = 3, rarely = 2, sometimes = 1, often = 0, usually = 0, and always = 0. The rationale for the scoring system given by Garner and colleagues (1982) is theoretical and rests on the assumption that a 1 to 6 scoring system may allow for two responses in the non-symptomatic direction to receive the same empirical weight. Thus, item scaling on the EAT-26 is continuous only for the responses weighted from 1 to 3. The total EAT-26 score, ranging from 0 to 78, consists of the combined scores of the three subscales.

The EAT-26 contains three subscales: 1) Dieting, 2) Bulimia and Food Preoccupation, and 3) Oral Control. The Dieting Subscale constitutes 13 items related to the avoidance of fattening foods and a preoccupation with thinness, for instance, "I am terrified about being overweight" and "I feel extremely guilty after eating." The Bulimia and Food Preoccupation Subscale contains six items reflecting thoughts about food and behaviors associated with Bulimia Nervosa, such as "I vomit after I have eaten" and "I have gone on eating binges where I feel I may not be able to stop." Finally, the Oral Control Subscale includes seven items related to an individual's feelings of control over

food and eating and the perceived pressure from others to increase their body weight, such as “I avoid eating when I am hungry” and “I feel others pressure me to eat.”

The researcher scored the responses to the EAT-26 questionnaire according to the scoring procedures recommended by Garner and colleagues (1979; 1982). These researchers suggest that a cut-off score of 20 or above on the EAT-26 be used to classify clinical levels of abnormal eating patterns. That is, any participants who score 20 or above on the EAT-26 may evidence levels of abnormal eating patterns requiring further diagnosis and possible treatment. In addition, they suggest that the purpose of the EAT-26 is not to diagnose eating disorders; rather it is more appropriately viewed as a screening measure of abnormal attitudes towards food and eating common to eating disorders. Consequently, for this study, the EAT-26 was used to measure levels of eating disorder symptomatology, as opposed to diagnosing eating disorders in the sample (see Appendix B for a copy of the EAT-26).

#### Procedure

To recruit the sample for this study, the researcher approached university instructors and professors from a variety of academic fields in order to seek permission to go into their classrooms and administer the surveys. Core classes were initially targeted because these are the courses that all potential graduates are required to take. Due to the disproportionate number of Caucasian students to Native students in the core classes, however, specific courses were also targeted, such as the Alaska Native Studies sequence, in order to obtain 50 surveys completed by Native students. Following approval from the instructor, the researcher went into each classroom at the agreed upon

time. The research project was explained to the students and they were informed that their participation in the study was voluntary and that non-participation would not result in any penalty.

Each student received two copies of the informed consent, one for research records and one for them to keep. The informed consent described the research study, the risks and benefits of the study, the procedures that guaranteed each student's anonymity and the confidentiality of their answers. Two copies of the informed consent were distributed to the research participants in two separate packets. The researcher passed out two packets to each of the students interested in participating and who also met the criteria to participate in the study (i.e., college students at least 18 years of age). The first packet contained an informed consent form (see Appendix C for a copy of the Informed Consent) and the referral form (see Appendix D for a copy of the Referral Form). The referral form was included in the unlikely event that a person became upset when answering or completing the surveys, and provided information regarding local services available to students with mental health needs.

The second packet contained the informed consent form and the two research instruments, the Demographic Survey and the Eating Attitudes Test (EAT-26). The researcher explained the packets thoroughly to the students and informed the research participants that the first packet was for them to keep for their own records and the second packet contained the research data that the students would return to the researcher after completion. After completion of the verbal instructions, those students who chose not to participate or those who did not meet the criteria for the study (i.e., those under 18



years of age) were informed that they were free to leave, or if the administration of the surveys occurred during the first ten to fifteen minutes of the class, those students not participating were informed that they could sit quietly until the participating students were finished with the study. In addition, any questions posed to the researcher regarding the study were answered at this time.

Each student was instructed that once they have finished the two surveys, they could hand back the second packet to the researcher and, depending on the time of class, either leave or return to their seat and sit quietly. After data collection, the informed consent forms were detached from the surveys and both were placed in secure but separate file cabinets. This procedure ensured the anonymity of the study participants in that all identifying information was removed from the surveys, prior to data entry.

Additionally, due to the sensitive nature of eating disorders and their related symptomatology, steps were taken to ensure that research participants were provided with psychological support if they became emotionally disturbed as a result of their participation in this study. In the event that a research participant developed an adverse emotional reaction as a result of participating in this research study, the referral form was provided for each participant and in addition, the researcher indicated to participants that she was available for consultation and referral. The researcher has taken courses in counseling as a graduate student at this university, in the Community Psychology Master's Degree Program. Thus, if such an event had occurred, the researcher was experienced and prepared to deal with such occurrences. If a student had become upset during the study, the researcher would have encouraged the student to refrain from



completing the remainder of the study, assessed the severity of the individual's situation, helped her or him to process their immediate reactions and feelings, and would then have referred the individual to the University's Counseling Center. If necessary, the researcher would have escorted the individual to the Counseling Center on the university campus. However, during the course of data collection, no students indicated that they had experienced an adverse emotional reaction as a result of their participation in the study and consequently, the support procedures described above were not utilized.

During the process of collecting and analyzing the data, all survey data and informed consent forms were stored in two separate locked file cabinets, in two secure locations within the Psychology Department. Anonymity was ensured through collection of no identifying information on any of the surveys. The University's Institutional Review Board (IRB) reviewed and approved this project on March 27, 2003.

#### Data Analysis

All data were analyzed using SPSS for Windows, student version 10.0 (Norusis, 2001). First, the researcher ran descriptive statistics for both the overall and matched samples. Second, reliability estimates were run using alpha coefficients to reassess the EAT-26 for its appropriateness for use with this population of university students. Third, chi-square tests were used to assess between-group differences in categorical data between the two matched samples of Native and Caucasian participants. Finally, independent samples t-tests were used to determine whether differences in EAT-26 total and subscale responses were found between the two matched samples.

## Results

### Sample Demographics

For the purpose of the present study, only data from female participants in the matched sample were compared. Specifically, to compare the Native and Caucasian participants, a matching process was used in which an Alaska Native/American Indian female participant was matched to a Caucasian female participant on the following variables: age (i.e., in five-year increments), class standing (i.e., groupings of Freshman/Sophomore, Junior/Senior, Year 1AA/2AA, and other), and current residence (i.e., on-campus or off-campus). In the matching process five Native female participants were eliminated because no Caucasian participants matched on all variables. The matched sample consisted of a total of 100 students, 50 (50.0%) self-identified as Native and 50 (50.0%) self-identified as Caucasian. Within the matched sample of Alaska Native/American Indian participants ( $n=50$ ), 4 (8.0%) self-identified as Aleut, 10 (20.0%) as Athabascan, 2 (4.0%) as Choctaw, 3 (6.0%) as Cherokee, 6 (12.0%) as Inupiaq, 3 (6.0%) as Inupiat, 1 (2.0%) as Ogalla Sioux, 4 (8.0%) as Tlinqit, 1 (2.0%) as Tsimshian, 6 (12.0%) as Yupik, and 10 (20.0%) other participants either chose not to specify an affiliation with a specific tribe, nation, or geographic location or their descriptions were too specific to report.

Table 2 provides a detailed breakdown of demographic data for the matched participants. The mean age of the overall matched sample was 25.60 years ( $SD=7.62$ ). The mean age of the matched Native participants was 25.74 years ( $SD=7.81$ ), while the mean age for the matched Caucasian participants was 25.46 years ( $SD=7.50$ ). With

regard to class standing, 30 (60.0%) of the participants from both groups in the matched sample were Freshman or Sophomores, 16 (32.0%) were Juniors or Seniors, 1 (2.0%) participant was year 1AA or year 2AA, and 3 (6.0%) participants identified as “other.” In addition, both groups had 16 (32.0%) participants living on-campus and 34 (68.0%) participants living off-campus.

The groups differed with regard to home community. Twenty-two (44.0%) of the Native participants identified their home community as being in rural Alaska (village), 23 (46.0%) in urban Alaska, and 5 (10.0%) as out-of-state. Only 5 (10.0%) of the Caucasian participants identified rural Alaska (village) as their home community, 36 (72.0%) as urban Alaska, and 9 (18.0%) as out-of-state. Because the groups differed significantly on this demographic variable, it was not possible to use this variable in the matching process. Table 2 provides demographic data for the matched sample of participants.

Table 2  
Demographic Data for the Matched Sample

	Matched Native (N=50)				Matched Caucasian (N=50)			
	<u>n</u>	<u>%</u>	<u>M</u>	<u>SD</u>	<u>n</u>	<u>%</u>	<u>M</u>	<u>SD</u>
Age	50	100.0%	25.74	7.81	50	100.0%	25.46	7.50
18-22	22	44.0%			22	44.0%		
23-27	17	34.0%			17	34.0%		
28-32	4	8.0%			4	8.0%		
33-37	3	6.0%			3	6.0%		
38-42	0	0.0%			0	0.0%		
43-47	2	4.0%			2	4.0%		
48-52	2	4.0%			2	4.0%		
Class								
Freshman/Soph.	30	60.0%			30	60.0%		
Junior/Senior	16	32.0%			16	32.0%		
Year 1AA/2AA	1	2.0%			1	2.0%		
Other	3	6.0%			3	6.0%		
Home Community								
AK Rural (Village)	22	44.0%			5	10.0%		
AK Urban	23	46.0%			36	72.0%		
Out-of-State	5	10.0%			9	18.0%		
Residence								
On-Campus	16	32.0%			16	32.0%		
Off-Campus	34	68.0%			34	68.0%		

#### Reliability Estimates

All data presented are from the matched sample of Native and Caucasian participants. Reliability estimates were run to reassess the Eat-26 for its appropriateness for use with this more modern population of female university students. Alpha coefficients for the present study's total matched sample were as follows: Factor 1 (Dieting Subscale) = .87, Factor II (Bulimia/Food Preoccupation Subscale) = .71, Factor

III (Oral Control Subscale) = .63, which compared favorably with the female university control group (Factor I = .86, Factor II = .61, and Factor III = .46) in Garner et al. (1982), and therefore supported the use of the EAT-26 with the current sample of female university students.

#### EAT-26 Clinical Cutoff Scores

Table 3  
Cutoff Scores for Eating Attitudes Test (EAT-26) – Matched Sample

	Above Cutoff ( $\geq 20$ )		Below Cutoff ( $< 20$ )	
	<u>n</u>	<u>%</u>	<u>n</u>	<u>%</u>
Total Matched Sample	14	14.0%	86	86.0%
Matched Native	4	8.0%	46	92.0%
Matched Caucasian	10	20.0%	40	80.0%

Table 3 summarizes the prevalence of clinical levels of eating disorder symptomatology in the matched sample, as indicated by a cutoff score of 20 or above on the EAT-26 (Garner, Olmsted, Bohr, & Garfinkel, 1982). Overall 14 (14.0%) participants in the matched sample (N=100) had cutoff scores at or above 20. Four (8.0%) of the female Native participants scored at or above the cutoff, whereas 10 (20.0%) of the Caucasian female participants had scores at or above the cutoff. Chi-square analyses of the cutoff scores revealed no significant differences between the two groups, in that Native participants were no more likely to report clinical levels of eating disorder symptomatology when compared with Caucasian participants ( $\chi^2=2.99$ ,  $df=1$ ,  $p=.074$ ).

## EAT-26 Means and Standard Deviations

Table 4

Means and Standard Deviations for Eating Attitudes Test (EAT-26) – Matched Sample

	Matched Native			Matched Caucasian			Significance
	<u>n</u>	<u>M</u>	<u>SD</u>	<u>n</u>	<u>M</u>	<u>SD</u>	
Total EAT-26	50	7.36	7.53	50	10.12	10.25	ns
Dieting Subscale	50	3.98	5.25	50	6.42	7.33	ns
Bulimia/Food Pre. Subscale	50	1.48	1.90	50	2.06	2.59	ns
Oral Control Subscale	50	1.90	2.25	50	1.64	2.64	ns

\*ns=not significant

Means and standard deviations are presented for the EAT-26 Total and subscale scores in Table 4. Native participants ( $M=7.36$ ,  $SD=7.53$ ) did not differ significantly from the Caucasian participants ( $M=10.12$ ,  $SD=10.25$ ) with regard to the EAT-26 Total,  $F(1,98)=4.78$ ,  $p=.128$ . The distribution of the Total EAT-26 scores for the Native and Caucasian matched female participants are shown in Figures 1 and 2.

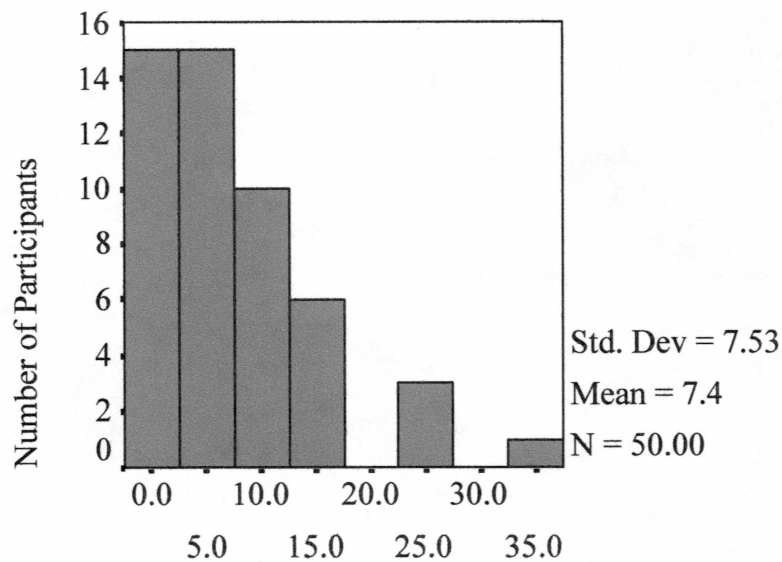


Figure 1: Matched Native EAT-26 Total Scores

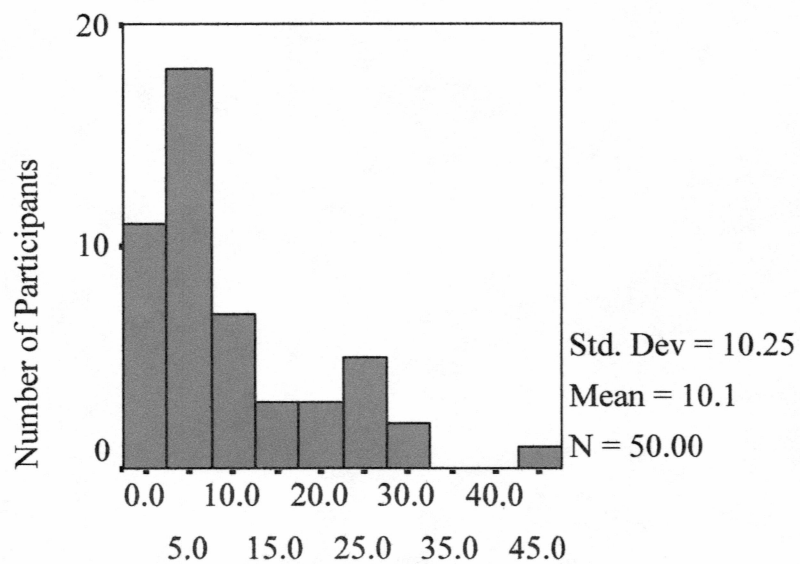


Figure 2: Matched Caucasian EAT-26 Total Scores



The independent samples t-test on the EAT-26 Dieting Subscale demonstrated a trend,  $F(1,98) = 5.74, p=.059$ , in that the Native participants reported lower scores approaching significance ( $M=3.98, SD=5.25$ ) on the Dieting Subscale, when compared with Caucasian participants ( $M=6.42, SD=7.33$ ). No significant differences were found for the Bulimia/Food Preoccupation Subscale, when the Native participants' scores ( $M=1.48, SD=1.90$ ) were compared with those of the Caucasian participants ( $M=2.06, SD=2.59$ );  $F(1,98)=2.40, p=.205$ . In addition, the Oral Control Subscale revealed no significant difference between Native ( $M=1.90, SD=2.25$ ) and Caucasian ( $M=1.64, SD=2.64$ ) participants;  $F(1,98)=.06, p=.597$ .

## Discussion

This paper is the first to examine eating attitudes and behaviors among Alaska Native/American Indians and Caucasians in the extreme north. The following paragraphs consider these findings in the context of the existing literature.

The results of the current research appear to demonstrate that eating disorder symptomatology is not restricted to Caucasian populations living in the extreme northern region of the United States. Rather, findings from this sample indicate that eating disorder symptomatology is present in both Caucasians and Alaska Native/American Indians. Findings from this study appear to contradict the notion that ethnic minority groups may be protected from the cultural messages that emphasize thinness within the United States, due to culturally based differences in attitudes towards body weight and appearance (Aoun & Gregory, 1998) and perceived social pressures to be thin (Powell & Kahn, 1994).

Contrary to the study's stated hypothesis there were no significant differences found between Native and Caucasian participants with regard to the EAT-26 clinical cutoff score. Eight percent of the Native female participants and 20.0% of the Caucasian female participants had EAT-26 scores indicative of eating disorder symptomatology in the clinical range (i.e., possibly in need of treatment), as defined by the authors of the instrument (Garner et al., 1982). This finding demonstrates a growing trend in the research literature (i.e., Smith & Krejci, 1991; Story et al., 1994), indicating that eating disorder symptomatology in the clinical range may exist among Alaska Native/American Indian women at rates comparable to that of Caucasian women.

The presence of eating disorder symptomatology in the clinical range among 8.0% of the Alaska Native/American Indian participants in the current study is similar to findings of previous studies that have shown clinical levels of disturbed eating patterns ranging from 2.9% to 11.0% among Alaska Native/American Indians (Aoun & Gregory, 1998; Snow & Harris, 1989). Likewise, the present finding regarding eating disorder symptomatology in the clinical range among 20.0% of the Caucasian female participants is generally consistent with previous studies that have found a prevalence of clinical levels of eating disorders and related disturbed eating attitudes and behaviors ranging from 2.0% to 25.0% in Caucasian female populations (e.g., Heatherton et al., 1995; Kashubeck, Walsh, & Crowl, 1994; Mintz & Betz, 1988; Nelson, Hughes, & Katz, 1999; Nielsen, 2000; Prouty, Protinsky, & Canady, 2002; Thelen et al., 1986). Thus, findings from the present study are similar to previous studies in that eating disorder symptomatology in the clinical range was evidenced by Alaska Native/American Indian and Caucasian participants on a college campus. Because this study was the first conducted on a college campus in the extreme north, it is possible that clinical levels of eating disorder symptoms are prevalent on most or all college campuses, without regard to ethnicity or geographic location.

In addition to an investigation of clinical levels of eating disorder symptomatology, this study also investigated the presence of abnormal eating attitudes and behaviors in the sample participants. Results indicated that Alaska Native/American Indian female participants did not differ significantly from their Caucasian counterparts with regard to their total EAT scores, indicating that the two groups scored similarly with

regard to abnormal eating attitudes and behaviors. This finding is comparable to previous research findings that Native females are just as likely as Caucasian females to evidence abnormal eating attitudes and behaviors (Smith & Krejci, 1991; Story et al., 1994). This finding is of interest because it suggests similarities among the two groups with regard to abnormal eating attitudes and behaviors. Further research is needed to investigate these similarities, and to yield a greater understanding of the eating disorder pathology among Native and Caucasian populations.

Findings regarding the EAT-26 Dieting Subscale did demonstrate a trend, in that Native female participants scored lower on the Dieting Subscale when compared to their Caucasian female counterparts. This finding indicates that Native female participants, when compared with Caucasian female participants in this study, may demonstrate less dieting behaviors, which include but are not limited to the avoidance of fatty foods and a preoccupation with becoming thinner. The trend contradicts the findings of other authors (Rosen et al., 1988; Sherwood, Harnack, & Story, 2000; Smith & Krejci, 1991; Snow & Harris, 1989; White et al., 1997), in that more Native women in their studies exhibited excessive dieting behaviors when compared to Caucasians. Although this finding may be contradictory to previous findings in the literature, it is consistent with the theory that attributes culturally based differences in attitudes towards body weight and appearance to lower rates of eating disorder symptomatology among Alaska Native/American Indians (Aoun & Gregory, 1998).

Further, the Native female participants in this study did differ significantly from their Caucasian counterparts with regard to their identified home community, with 44.0%

of the Native female participants being from rural Alaska, whereas only 10.0% of the Caucasian female participants recognized rural Alaska as their home community. The present study used the terms rural Alaska and village interchangeably. According to the Alaska Native Heritage Center (2000), approximately 16 percent of Alaska's residents are Alaska Native. Significant segments of this population live in over 200 rural villages and communities throughout Alaska. Within these rural villages and communities many Alaska Natives have retained their traditional ways, including customs, languages, and a subsistence lifestyle, which involves traditional hunting, fishing, food preparation and food consumption practices (Alaska Native Heritage Center, 2000). Therefore, it is possible that this sample of Native university female students living in the extreme north is somehow protected from cultural messages of the mass media that emphasize thinness and dieting, in comparison to Native women in other parts of the country, by virtue of their remote home community. Further research examining the possible protective factors of living in rural Alaskan villages would need to be conducted to investigate this possibility. However, because this finding on the Dieting subscale demonstrated a trend and was not significant, this result must be interpreted with extreme caution.

The research found no significant differences between Native and Caucasian participants with regard to the Bulimia/Food Preoccupation Subscale. The current findings indicate that Native female participants are no more likely than Caucasian female participants in this study to have symptoms associated with Bulimia or food preoccupation, such as self-induced vomiting and binge eating behaviors. Contrary to the current findings, previous research has shown significant amounts of purging behaviors

(i.e., self-induced vomiting) among Native populations (Rosen et al., 1988; Smith & Krejci, 1991; Snow & Harris, 1989; Story et al., 1994; White et al., 1997). Thus, it is significant that such behaviors were not present among the Native participants in the present sample.

Finally, the present study found no significant differences between Native and Caucasian participants on the Oral Control Subscale. The Oral Control Subscale measures an individual's perceived self-control around eating and their perceived pressure from others to gain weight. This finding indicates that Native female participants may not differ from Caucasian participants with regard to the amount of self-control displayed when eating or the amount of perceived pressure from others to gain weight. Future studies will be needed to investigate the phenomenon of Oral Control among various ethnic groups.

Overall, the findings of the current study indicate that eating disorder symptomatology exists among this matched sample of female university students living in the extreme north. More surprising are the findings indicating that the Native and Caucasian participants tend not to differ from one another with regard to eating disorder symptomatology. Several factors may possibly be contributing to the presence of eating disorder symptomatology among the Alaska Native/American Indian participants in this study. One possible important factor is the dramatic change in diet among Alaska Native/American Indian populations over the past century (Alaska Federation of Natives, 2002; Byers, 1996; Nobmann, Byers, Lanier, Hankin, & Jackson, 1992; Story, Strauss, Zephier, & Broussard, 1998). According to the Alaska Federation of Natives (2002),



steady growth and development has increased competition for fish and game, threatening the survival of rural communities and traditional subsistence lifestyles. Poor nutrition among Alaska Natives has been linked to the increased reliance on non-subsistence foods, such as candy, soda and junk food (Alaska Federation of Natives, 2002). Furthermore, increased levels of obesity and related illnesses have been documented among Alaska Native/American Indian populations (Sherwood, Harnack, & Story, 2000; Story, Strauss, Zephier, & Broussard, 1998; White et. al., 1997). The rise of obesity within Native populations may be linked to the addition of non-traditional food sources. Consequently, within the United States people who are considered to be obese run the risk of discrimination and humiliation (Castillo, 1997), due in part to the fact that obesity has come to symbolize laziness, self-indulgence, and a lack of willpower (Wilfley & Rodin, 1995). Social pressures such as these have been attributed to onset of eating disorders and abnormal eating attitudes and behaviors (Powell & Kahn, 1994). Therefore, it is conceivable that a recent change in lifestyle has led to higher levels of obesity among Native populations, and may further be linked to higher levels of eating disordered behaviors among this population. However, further investigation into this phenomenon is needed to determine if a link exists between the addition of non-traditional food sources and obesity in Native people and thus, the onset of eating disorders and related attitudes and behaviors.

The findings from the current study suggest that eating disorders are not restricted to one ethnic group or geographic location. However, while the EAT-26 may indicate the presence of eating disorder symptomatology, it does not reveal the motivation of possible



psychopathology underlying the behaviors (Garner et al., 1982). Therefore, further speculation regarding underlying psychopathology of the current phenomenon will need to be investigated in future studies.

### Strengths and Limitations

As stated previously, the present study is unique in that it is the first study to examine eating disorder symptomatology among Alaska Native/American Indians and Caucasians in the extreme north. In addition, it appears to be the first study to use the EAT-26 to assess eating attitudes and behaviors in a Native sample. However, the appropriateness of the EAT-26 for use with Native populations has not yet been determined. Further research is needed to determine if the EAT-26 is culturally appropriate for use with Alaska Native/American Indian populations. Finally, unlike previous studies that tend to use only undergraduate psychology students as participants in the research, this research gathered data from a variety of demographically diverse individuals in a variety of different academic course settings, possibly making this research more generalizable to a university-wide female population.

However, there are several limitations with regard to the findings from the present study. First, the study involved the exclusive reliance upon a single, paper and pencil, self-report instrument. Ideally, the EAT-26 should serve as a screening instrument, followed by semi-structured or structured interviews and other assessments, such as the Body Mass Index, to explore eating attitudes and behaviors (e.g., Arriaza & Mann, 2001; Gluck & Geliebter, 2002; Joiner & Kashubeck, 1996; Rosen et al., 1988; Smith & Krejci,

1991; White et al., 1997). Due to logistical constraints, these extensive methodological procedures were not possible in the present study.

Second, findings from this study are limited in that the sample size is relatively small. The relatively small number of Alaska Native/American Indian participants in the study reflects the demographics of the Alaska Native/American Indians who attend this university in Alaska, and thus, generalizability of these findings may be limited to this university population. Therefore, although this study did not suggest significant differences in eating disorder symptomatology among Native and Caucasian students attending this university, it is possible that differences may begin to emerge in future studies of larger sample size. Similarly, due to the considerable diversity among Alaska Native/American Indian groups it would be unwise to generalize from the participants in the current study to other Alaska Native/American Indian populations.

Third, contrary to recent studies (e.g., Arriaza & Mann, 2001; Gluck & Geliebter, 2002; Joiner & Kashubeck, 1996; Rosen et al., 1988; Smith & Krejci, 1991; White et al., 1997), the current study did not control for body mass index. Arriaza and Mann (2001) state that a lack of control for body mass index may be one potential confounding variable in eating disorder research, resulting in conflicting conclusions regarding eating disorder symptomatology among ethnic minority groups. Addition of this measurement variable may be an important added component in future research examining eating disorder symptomatology among these populations.

Finally, several recent studies have looked at the impact of acculturation on the development of eating disorder pathology (e.g., Cachelin, Veisel, Barzegarnazari, &

Striegel-Moore, 2000; Cachelin, Weiss, & Carbanati, 2003; Dulce, Hunter, & Lozzi, 1999; Joiner & Kashubeck, 1996; Kuba & Harris, 2001; Perez, Voelz, Pettit, & Joiner Jr., 2002). With the exception of one study (Joiner & Kashubeck, 1996), this research has shown that higher levels of acculturation may impact the development of eating disorder pathology (Cachelin, Veisel, Barzegarnazari, & Striegel-Moore, 2000; Cachelin, Weiss, & Carbanati, 2003; Dulce, Hunter, & Lozzi, 1999; Kuba & Harris, 2001; Perez, Voelz, Pettit, & Joiner Jr., 2002). The inclusion of an acculturation scale was originally considered in the design of this research and the lack of such an assessment is clearly a limitation of the present study.

#### Future Directions

The findings from the present study suggest that clinicians and researchers alike should be more sensitive to the presence of abnormal eating attitudes and behaviors among previously neglected populations (i.e., Alaska Native/American Indians). The fact that eating disorder symptomatology was found among both Alaska Native/American Indian and Caucasian populations of this study has strong implications for prevention and treatment both on- and off-campus. Organizations devoted to assisting students on campus may wish to focus on culturally sensitive and appropriate prevention and treatment options for Alaska Native/American Indians who may be suffering from an eating disorder or from disturbed eating attitudes and behaviors. Prevention and treatment programs should not be limited to university populations, rather they should include culturally based community organizations in their efforts to prevent and treat these disorders. Additionally, prevention and treatment programs should focus not only on

those viewed as at risk for the disorder but should also involve younger individuals within the community. Programs may wish to incorporate lessons regarding the maintenance of a healthy body weight through a nutritional diet and physical activities.

Another future direction of research should include further investigation of the finding that Native female participants, when compared with Caucasian female participants in this study, may demonstrate less dieting behaviors, such as the avoidance of fatty foods and a preoccupation with becoming thinner. Future studies should investigate resilience and protective factors among Alaska Native/American Indian populations to determine whether there are culturally based differences in attitudes toward body weight and appearance. In addition, future research may wish to investigate the extent to which the perceived social pressures to be thin influences Alaska Native/American Indian eating attitudes and behaviors.

In conclusion, the present study appears to indicate that eating disorder symptomatology is present among both Alaska Native/American Indian and Caucasian female university students. Additional research is needed to replicate and clarify the findings of the present study. Future studies should build on the strengths of the present study by exploring these issues with a larger number of Alaska Native/American Indian participants in a wider range of non-clinical settings. In addition, future research may wish to include a comparison of eating disorder symptomatology among Native and other ethnic minority groups (i.e., African American, Hispanic, Asian American). Another avenue that may be of interest in future studies is to look outside of the university setting to determine if eating disorder symptomatology exists in rural areas and villages of

extreme northern regions of the United States and other countries as well. Additionally, future studies may wish to investigate Body Mass Index and acculturation when comparing eating attitudes and behaviors among various ethnic groups.

Finally, research in the future may wish to further investigate the etiology of eating disorders and related pathologies, particularly among Alaska Native/American Indian populations living in Alaska. For instance, a study involving Alaska Native/American Indian individuals formally diagnosed with eating disorders, as compared to other ethnic groups, may yield interesting information regarding the underlying motivation behind this pathology. Ultimately, the establishment of clear causal links and a better understanding of the phenomenon may further the success of prevention and treatment programs.

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Appendix A  
Demographics Survey

## 1. Sex:

Male \_\_\_\_ Female \_\_\_\_

## 2. Year of Birth:

\_\_\_\_\_

## 3. Class Standing:

Freshman \_\_\_\_ Sophomore \_\_\_\_ Junior \_\_\_\_ Senior \_\_\_\_

Year 1 A.A. \_\_\_\_ Year 2 A.A. \_\_\_\_ Other \_\_\_\_\_

## 4. Ethnicity:

African American \_\_\_\_ Alaska Native/ Native American \_\_\_\_ Asian \_\_\_\_

Caucasian \_\_\_\_ Hispanic (Non-Caucasian) \_\_\_\_ Other \_\_\_\_\_

## 5. If you checked Alaska Native/ American Indian, please specify which Geographic Area, Nation and/or Tribe you identify with:

\_\_\_\_\_

## 6. Home Community (Where you consider yourself to be from):

Village \_\_\_\_ Alaska Urban (Fairbanks, Anchorage, Juneau, etc...) \_\_\_\_

Out-of-State \_\_\_\_

## 9. Residence:

On-Campus \_\_\_\_ Off-Campus \_\_\_\_

Appendix B  
Eating Attitudes Test  
EAT – 26

Please circle ONE response for each of the following statements.

1. I am terrified about being overweight

Always	Usually	Often	Sometimes	Rarely	Never
--------	---------	-------	-----------	--------	-------

2. I avoid eating when I am hungry

Always	Usually	Often	Sometimes	Rarely	Never
--------	---------	-------	-----------	--------	-------

3. I find myself preoccupied with food

Always	Usually	Often	Sometimes	Rarely	Never
--------	---------	-------	-----------	--------	-------

4. I have gone on eating binges where I feel I may not be able to stop

Always	Usually	Often	Sometimes	Rarely	Never
--------	---------	-------	-----------	--------	-------

5. I cut my food into small pieces

Always	Usually	Often	Sometimes	Rarely	Never
--------	---------	-------	-----------	--------	-------

6. I am aware of the calorie content of the foods I eat

Always	Usually	Often	Sometimes	Rarely	Never
--------	---------	-------	-----------	--------	-------

7. I particularly avoid food with a high carbohydrate content (bread, rice, potatoes, etc.)

Always	Usually	Often	Sometimes	Rarely	Never
--------	---------	-------	-----------	--------	-------

8. I feel that others would prefer if I ate more

Always	Usually	Often	Sometimes	Rarely	Never
--------	---------	-------	-----------	--------	-------

9. I vomit after I have eaten

Always	Usually	Often	Sometimes	Rarely	Never
--------	---------	-------	-----------	--------	-------



10. I feel extremely guilty after eating

Always      Usually      Often      Sometimes      Rarely      Never

11. I am preoccupied with a desire to be thinner

Always      Usually      Often      Sometimes      Rarely      Never

12. I think about burning up calories when I exercise

Always      Usually      Often      Sometimes      Rarely      Never

13. Other people think I'm too thin

Always      Usually      Often      Sometimes      Rarely      Never

14. I am preoccupied with the thought of having fat on my body

Always      Usually      Often      Sometimes      Rarely      Never

15. I take longer than others to eat my meals

Always      Usually      Often      Sometimes      Rarely      Never

16. I avoid foods with sugar in them

Always      Usually      Often      Sometimes      Rarely      Never

17. I eat diet foods

Always      Usually      Often      Sometimes      Rarely      Never

18. I feel that food controls my life

Always      Usually      Often      Sometimes      Rarely      Never

19. I display self-control around food

Always      Usually      Often      Sometimes      Rarely      Never

20. I feel that others pressure me to eat

Always      Usually      Often      Sometimes      Rarely      Never

21. I give too much time and thought to food

Always	Usually	Often	Sometimes	Rarely	Never
--------	---------	-------	-----------	--------	-------

22. I feel uncomfortable after eating sweets

Always	Usually	Often	Sometimes	Rarely	Never
--------	---------	-------	-----------	--------	-------

23. I engage in dieting behavior

Always	Usually	Often	Sometimes	Rarely	Never
--------	---------	-------	-----------	--------	-------

24. I like my stomach to be empty

Always	Usually	Often	Sometimes	Rarely	Never
--------	---------	-------	-----------	--------	-------

25. I have the impulse to vomit after meals

Always	Usually	Often	Sometimes	Rarely	Never
--------	---------	-------	-----------	--------	-------

26. I enjoy trying new rich foods

Always	Usually	Often	Sometimes	Rarely	Never
--------	---------	-------	-----------	--------	-------

Adapted from Garner, D.M., et al. (1982). The eating attitudes test: Psychometric features and clinical correlates. *Psychological Medicine*, 12, 871-878.

Appendix C  
Differences in Eating Attitudes and Behaviors between  
Alaska Native/American Indian and Non-Native College Students  
Informed Consent

IRB # 03-14

Date Approved: March 27, 2003

You are asked to read the following material to make sure you are fully informed about this research study and your participation. Signing this form indicates that you have been informed and that you give your consent. Federal regulations require written informed consent before you participate in this study so that you can know the nature and risks of your participation and can decide to participate or not participate.

**Purpose:**

You are invited to participate in a study designed to examine differences in the prevalence of eating disorder symptoms among college women. It has been shown that different cultural groups may develop different eating attitudes and behaviors. The researcher will look at differences in eating attitudes and behaviors between Alaska Native/American Indian and Non-Native college students. The researcher wants to learn about this difference among cultural groups in hopes of gaining a greater awareness of any differences that may be present. This information is important because of its potential to foster more effective and appropriate eating disorder prevention and treatment programs in the future. Results from this study will be used to complete a Master's Thesis in Psychology and may be used in conference publications or journal publications.

**Procedure:**

You are asked to complete two different surveys. The first will be a demographics survey, which will ask you to identify your sex, year of birth, class standing, ethnicity, home community, and current residence. The second survey is the EAT-26, which asks you to rate the frequency with which you participate in certain eating behaviors and attitudes. Filling out the two surveys will take no longer than 10-15 minutes. At no time will individual data be presented. Findings from this study will be archived at the University of Alaska Fairbanks Rasmuson Library for five years.

**Voluntary Participation**

You must be 18 years or older to participate in this study. Participation in this study is completely voluntary. You do not have to take part in this study if you do not want to. There will not be a penalty if you choose not to participate. You may withdraw from the study at any time with no penalty.

**Risks or Discomforts:**

Completion of this survey involves minimal risks for most participants. However, some of the questions may cause some emotional distress to anyone who has suffered from or

is suffering with an eating disorder. The language of many of the questions in the surveys does directly focus on various eating disorder symptoms and behaviors and may seem invasive or fairly personal. If you experience painful emotions as a result of your participation in this study you may end your participation at any time. If you feel you need to talk about these emotions, there is a list of referral sources attached to this form, with contact information for several agencies that can help you.

#### Benefits:

The researcher hopes there will be many benefits of this research. The most important is to learn about the differences between Alaska Native/American Indian and Non-Native students with regard to eating attitudes and behaviors. The researcher hopes to learn about things that may prevent or lessen the risk of eating disorders among these populations. Your participation may contribute to awareness of what could become a major part of eating disorder prevention programs and treatment programs in the future. However, there will be no direct benefit to you from your participation in this study.

#### Confidentiality:

Your answers are completely confidential. Your name on the consent form will be kept separate from answers at all times. We will not tell anyone who took part in this study. Answers and consent forms will be kept separately and in a locked research room. The only people who will have access to this room will be UAF Department of Psychology research staff, graduate students conducting IRB-approved research, a research assistant, the researcher, and the faculty member supervising this project.

#### Contacts:

Miranda Saunders is conducting this study for her thesis research and Dr. Pam Deters is the research supervisor. If you have any questions at any time regarding this project's activities, you may call Miranda Saunders at 907-451-4476 or email her at [fmrs@uaf.edu](mailto:fmrs@uaf.edu), or call Dr. Pam Deters at 907-474-5721 or email her at [Pam.Deters@uaf.edu](mailto:Pam.Deters@uaf.edu). If you have questions regarding your rights as a research participant, please contact Karin Davidson, Research Committee Coordinator, Office of Research Integrity, at 907-474-7800 ([fyori@uaf.edu](mailto:fyori@uaf.edu)).

#### Authorization:

Signing below means the methods, inconveniences, risks, and benefits have been explained to you, any questions have been answered, and you consent to participate in this research. Signing this form also verifies that you are 18 years or older. Your participation in this research is voluntary. You may ask questions at any time. You are free to withdraw from the survey at any time without penalty. You are free to not answer any question you do not want to answer. A copy of this consent form will be given to you for your records.

---

Participant's Signature

---

Date

## Appendix D Referral Form

If you experience unpleasant memories or emotions regarding your own or others' experience with eating disorders or eating disorder symptoms, the agencies and organizations listed below have resources available to work with you. Please do not hesitate to contact any of them.

1. University of Alaska Fairbanks Center for Health & Counseling  
2nd Floor - Health Safety and Security Building (across from Wood Center)  
(907) 474-7043  
fyheaco@uaf.edu
2. Careline Crisis Intervention  
(907) 452-4357  
1-800-898-5463
3. Fairbanks Memorial Hospital  
1650 Cowles St.  
(907) 452-8181
4. Fairbanks Community Mental Health Center  
122 1<sup>st</sup> Ave. 4<sup>th</sup> Floor  
(907) 452-1575
5. Fairbanks Counseling & Adoption  
912 Barnette St.  
(907) 456-4729
6. Chief Andrew Isaac Health Center - Counseling Center  
1408 19<sup>th</sup> Avenue  
(907) 459-3800